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Food Security in Central America

An Update

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This report is the fourth in a series of reports that USDA's Economic Research Service produces under the Hurricane Mitch Reconstruction project on food security. These reports focus on the four individual countries most affected by the hurricane—El Salvador, Guatemala, Honduras, and Nicaragua. This report will focus on defining a healthy food basket, assessing the cost of this basket, and comparing this cost to income levels of the four countries.

The fundamental cause of food insecurity is poverty, which limits access to food. The cost of a nutritionally adequate food basket relative to income is a practical indicator of food security. Any decline in food costs and/or increase in income would be expected to improve food security of a household. Estimating the relationship between income needed to purchase a nutritionally adequate basket of food and per capita income helps us determine the number of people who lack the purchasing power to satisfy their basic nutritional needs.

Estimating the Cost of a Healthy Food Basket

To estimate the food purchasing power of countries and their different income groups, we calculated a *food purchasing power threshold* (FPPT) for the four Central American countries. We used the FPPT to estimate the costs of a healthy food basket based on dietary customs and preferences in each country. By comparing per capita incomes in these countries with the cost of such a diet, we determined the number of people who lack the purchasing power to satisfy their nutritional needs. We then estimated the degree to which incomes fall below the threshold by distributing per capita income across five income quintiles using income distribution data from the World Bank.

A daily per capita supply of 2,170 calories was the basis for the food basket. We derived these intake levels from region-specific caloric standards recommended by the Food and Agriculture Organization (FAO) of the United Nations (UN) in its nutritional guidelines for developing countries. The caloric requirements are those needed to sustain life with minimum food-gathering activities.

To estimate the purchase price of the food basket, we distributed the 2,170 calories among specific food and nutrient groups according to several criteria. These criteria included typical country food consumption patterns, FAO/World Health Organization nutritional guidelines for developing countries, and the U.S. Recommended Daily Allowances for specific nutrients. The diets are largely plant-based, consisting of 65 percent carbohydrates, 20 percent fat, and 15 percent protein. Depending on the diet of the countries, one or a few commodities were selected to represent each nutrient group. For example, wheat and corn might be selected to represent the carbohydrate group, meat or pulses to represent protein, and vegetable oils to represent fat. No attempt was made to analyze the adequacy of micronutrients, such as iron or Vitamin A, in the diet. However, low-calorie intake is typically closely related to low levels of consumption of a wide range of essential vitamins and minerals.

How Is the Cost of the Food Basket Calculated?

Let's use an example to illustrate the approach: 2,170 calories need to be consumed to reach nutritional requirements, and 65 percent of these calories, or 1,411 calories, should come from carbohydrates. These calories can be converted into grain-equivalent grams by using the grain conversion rate of about 3 calories per gram, which results in 470 grams of cereals (to represent carbohydrates) per day. In Guatemala, corn and wheat are the most commonly consumed carbohydrates, with a ratio of roughly 3 to 1. We therefore construct a price for carbohydrates as a weighted average of the local corn and wheat prices, using as weights the same ratio found in the local consumption pattern. We get the cost of carbohydrates per capita per day by multiplying the target for daily carbohydrate consumption with the carbohydrate price. We calculate the cost of fat and protein in a similar way.[1] We derive the annual cost of a healthy food basket by adding the cost of the three food groups and multiplying them by 365 days.

[1]The conversion rate for protein is approximately 3 calories per 1 gram and 9 calories per gram for fat.

We estimated the cost of the food basket by calculating the cost of carbohydrates, protein, and fat per day, using a weighted average of local retail prices for the food items included in the basket (see box for a detailed description of the methodology).

The FPPT is used to estimate (1) average income gaps and gaps by income group, (2) the number of food-insecure people, (3) the intensity of income gaps by income group, and (4) the income growth required to fill the gap.

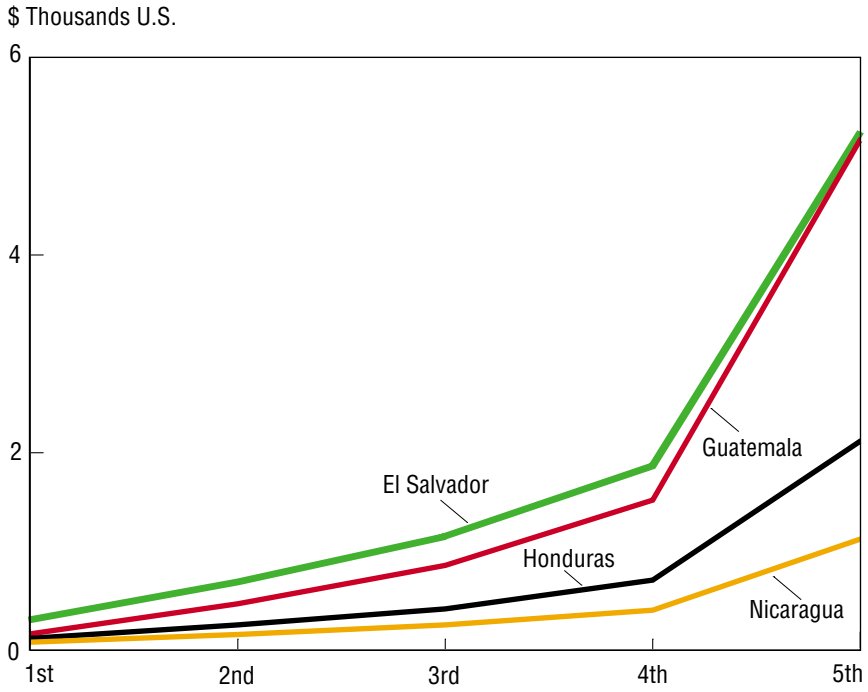
Food Baskets Defined

Per capita calorie consumption in the four countries was slightly below nutritional requirements in Guatemala and slightly above in Nicaragua in 1998. In Honduras, per capita calorie consumption averaged more than 2,300, and in El Salvador, over 2,500. Half of the calories in these countries comes from cereals, mostly corn and, to an increasing extent, wheat (rice is an important staple only in Nicaragua). These cereals represent the carbohydrates group in the food basket. Meats, pulses, and milk represent the protein group. Meat consumption, however, is fairly low at roughly 3 percent of total consumption, with poultry the most popular meat in Guatemala, Honduras, and Nicaragua. Pulses make up roughly 4 percent of the diet, except in Nicaragua, where the share is 7 percent. Vegetable oils represent the fats group and make up 7-12 percent of total calorie consumption. Soy and palm oil are the region's most commonly consumed fats.

Costs of Food Baskets Relative to Incomes

The region's per capita income ranges from $410 in Nicaragua to $1,850 in El Salvador. The annual cost of a basic food basket is approximately $150 in each country, with the exception of Guatemala. While average per capita incomes appear to cover the cost of the basic food basket, we must allow for basic expenditures other than food, such as housing and clothing. We assume that these other expenditures are at least equal to the cost of the basic food basket (this assumption is supported by data from the UN's 1996 International Comparison Project). Consequently, the threshold income level to purchase these "basics" is double the cost of the food basket, or roughly

Per Capita Income in Central America by Income Quintile



Source: ERS calculations based on World Development 2000/2001, World Bank.

$300 in El Salvador, Honduras, and Nicaragua and $386 in Guatemala. Average incomes are still above this threshold, but because incomes are distributed unevenly, large segments of the populations have inadequate purchasing power and may suffer from hunger.

Latin American is known for its uneven distribution of wealth, and Guatemala is one of the countries with the most unequal income distribution in the world. The poorest quintile accounts for just 2.1 percent of the nation's income, while the richest quintile holds 63 percent of the income. Nicaragua has the least skewed income distribution among this group of countries, with 4.2 percent of the nation's income going to the poorest and 55.2 percent to the richest quintile.

If we take into account the information on income distribution, per capita income in 1998 was distributed as follows:

Per Capita Income in Central America, 1998

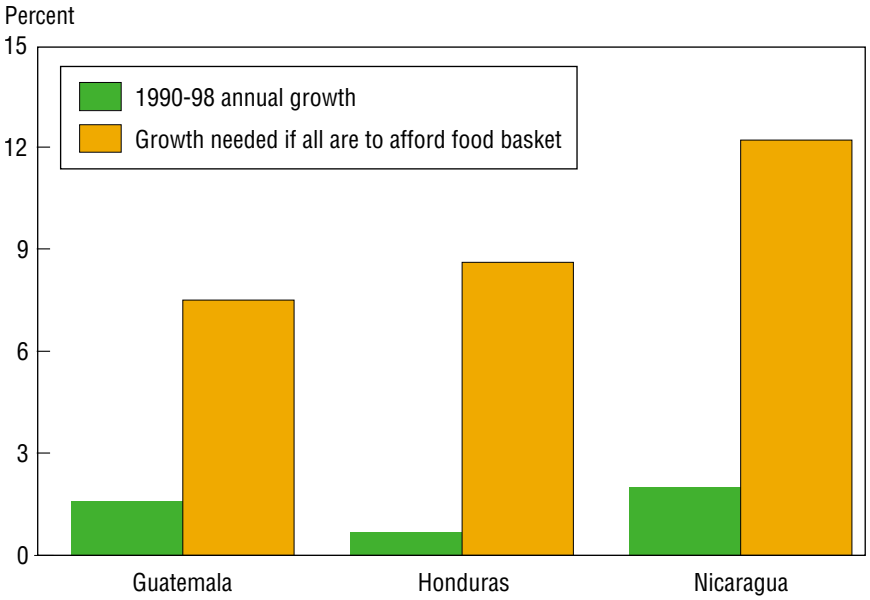
Country	Threshold income level	Income quintiles 1st	2nd	3rd	4th	5th	National average
El Salvador	306	315	694	1,156	1,869	5,226	**1,850**
Guatemala	366	172	476	861	1,525	5,166	**1,640**
Honduras	294	124	259	427	719	2,117	**760**
Nicaragua	292	86	164	258	410	1,132	**410**

Shaded areas = Income groups with incomes below the threshold level.
Source: World Development Report 2000/2001, World Bank.

According to our analysis, the income level in El Salvador exceeded the threshold level, meaning that less than 20 percent of the population fell below the threshold level. An estimated 20 percent of the population in Guatemala had insufficient purchasing power to afford a nutritionally adequate diet; the same was true for 40 percent of the people in Honduras and 60 percent of the people in Nicaragua. We estimate the number of "hungry" people at close to 7.5 million for the region: 2.3 million in Guatemala, 2.5 million in Honduras, and 2.7 million in Nicaragua.

How fast would incomes have to grow to provide the poorest quintile with enough income to afford the basic food basket? If we assume no change in the income distribution, per capita income would have to grow over 12 percent each year to raise income levels of the poorest quintile in Nicaragua to the threshold income level within 10 years. Income would need to grow 8.6 percent in Honduras and 7.5 percent in Guatemala. With per capita incomes increasing 1-2 percent per year in the 1990s, this kind of growth seems hard to achieve. A serious attempt to fight poverty will require a combination of general income growth and policy measures aimed at making income distribution more equal.

Per Capita Income Growth in Central America



Note: El Salvador exceeded the threshold level.
Source: ERS calculations based on World Development Report 2000/2001, World Bank.

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